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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Xunming Deng GAU: 1795; Conf. No.: 7826

Serial No.: 10/696,545 Examiner: Jeffrey Thomas Barton

Filed: October 29, 2003 Docket No.: 1-25574/PHYS00402

For: HYBRID WINDOW LAYER FOR PHOTOVOLTAIC CELLS

Mail Stop Amendments
Commissioner for Patents, P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Honorable Sir:

Responsive to the Office Action mailed November 14, 2007, please amend the above-identified application as indicated on the following pages.

If any fees are required pertaining to this response, Applicant(s) request that all necessary fees be charged to Deposit Account No. 13-0005.

Respectfully submitted,

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AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A novel photovoltaic solar cell comprising:

at least one absorber layer, and

at least one doped window layer having at least two sub-layers, wherein the first sub-window layer ~~sub-window-layer~~ is adjacent the absorber layer and forms a desirable junction with the absorber layer ~~absorber-layer~~ and wherein the second sub-window layer ~~sub-window-layer~~ is adjacent the first sub-window layer ~~sub-window-layer~~ and has high optical transmission;

wherein the absorber layer of the photovoltaic cell comprises a thin film silicon (tf-Si) alloy based solar cell including at least one of amorphous silicon (a-Si:H) based solar cell, amorphous silicon germanium (a-$Si_{(1-x)}Ge_x$:H) based solar cell, nanocrystalline silicon (nc-Si:H) based solar cell, microcrystalline silicon (μc-Si:H) based solar, polycrystalline silicon (poly-Si:H) based solar cell, or other combinations and mixtures thereof;

the first and second p-type sub-window layers having substantially the same chemical composition but having different bandgaps, wherein the second sub-window layer has a bandgap wider than the bandgap of the first sub-window layer, and wherein there is a minimal mismatch between the bandgap of the first sub-window layer and the bandgap of the absorber layer that is adjacent to the first sub-window layer.

2. - 10. Cancelled

11. (Original) The solar cell of claim 1, further comprising a substrate selected from at least one of: glass, metal or plastic.

12. (Currently Amended) The solar cell of claim 11, further comprising a ~~suitable~~ transparent conductive oxide layer adjacent the second sub-window-layer.

13. Cancelled

14. (Original) The solar cell of claim 1, further comprising a buffer semi-conductor layer between the absorber-layer and the first sub-window-layer.

15. - 74. Cancelled

75. (New) The solar cell of claim 1, the first sub-window layer being formed by deposition at a first temperature, and the second sub-window being formed by deposition at a second temperature that is lower than the first temperature.

76. (New) The solar cell of claim 1, the sub p-layer adjacent to the i-layer being formed after the i-layer is formed.

77. (New) The solar cell of claim 11, wherein the substrate comprises a stainless steel metal, the first and second sub-window layers comprise a-Si:H, the absorber layer comprises a-SiGe:H, and the n-layer comprises a-Si:H.

78. (New) The solar cell of claim 77, the first sub-window layer being formed by deposition at a first temperature, and the second sub-window being formed by deposition at a second temperature that is lower than the first temperature.